

WHAT IS CLAIMED IS:

1. A position light for use on an aircraft, comprising:
 - a housing structure;
 - at least one light source arranged inside said housing structure;
 - 5 a prism having an input face, an output face, and a transfective face to receive, distribute, and direct light emitted by said light source, said light source being located externally to said prism; and
 - a lens through which emitted light passes.
2. The position light of claim 1 wherein a first portion of the light
10 emitted from said light source undergoes total internal reflection at said transfective face of said prism and a second portion of the light emitted from said light source is transmitted through said transfective face, the combination of said first and second portions of light producing a lighting pattern with a sharp angular cutoff corresponding to the critical angle for
15 said total internal reflection at said transfective face.
3. The position light of claim 1, further comprising means for aligning said light source to direct said light source.
4. The position light of claim 3, wherein said aligning means further includes means for carrying away heat generated by said light source.
- 20 5. The position light of claim 1, further comprising means for controlling the amount of electrical current applied to said light source.
6. The position light of claim 5, wherein said current control means is one of located inside said housing structure and located remotely from said housing structure.
- 25 7. The position light of claim 5, wherein said current control means includes means for modulating the intensity of said light source.
8. The position light of claim 1, wherein said light source emits one of a green, red, and white light.
9. The position light of claim 1 wherein said light comprises a
30 plurality of light sources.

10. The position light of claim 9, wherein said light sources comprise one or more combinations of colors.

11. The position light of claim 9, wherein said light sources comprise one or more combinations of angular distribution.

5 12. The position light of claim 9, wherein said light sources are electrically connected in series.

13. The position light of claim 9, wherein said light sources are electrically connected in series-parallel.

10 14. The position light of claim 1, wherein said light source is solid state.

15 15. The position light of claim 1, further comprising an optical filter to condition the light emitted by said light source.

16. The position light of claim 1, further comprising at least one diffuser to further condition and distribute the light emitted by said light source.

17. The position light of claim 1, further comprising a second prism having an input face, an output face, and a transfective face to further shape and direct the light emitted by said light source.

20 18. The position light of claim 17, further including facets on the input face of said second prism.

19. The position light of claim 18, wherein said facets are one of flat and curved.

20. The position light of claim 17, further including facets on all faces of said second prism.

25 21. The position light of claim 1, wherein said prism includes facets on the input face of said prism.

22. The position light of claim 21, wherein said facets are one of flat and curved.

30 23. The position light of claim 21, further including facets on all faces of said prism.

24. A solid state position light for use on an aircraft, comprising:

a housing structure;

a plurality of solid state light sources arranged inside said housing structure;

5 means for aligning said solid state light sources to direct said light sources;

a prism having an input face, an output face, and a transreflective face to receive, distribute, and direct light emitted by said solid state light sources, said light sources being located externally to said prism;

10 means for controlling the amount of electrical current applied to said solid state light sources; and

a lens through which emitted light passes.

25. A position light for use on an aircraft, comprising:

a housing structure;

15 a plurality of light sources arranged inside said housing structure, wherein said light sources are electrically connected in series-parallel;

means aligning said light sources to direct said light sources;

means for carrying away heat generated by said light sources;

an optical filter for further conditioning the light emitted from said light sources;

20 a diffuser for further conditioning and distributing the light emitted from said light sources;

25 a first prism having an input face, an output face, and a transreflective face to receive, distribute, and direct light emitted by said light sources, said light sources being located externally to said first prism, said first prism including facets on said input face;

a second prism having an input face, an output face, and a transreflective face to further shape and direct the light emitted by said light sources, said second prism including facets on said input face;

30 means for controlling the amount of electrical current applied to said light sources; and

a lens through which emitted light passes.

26. A position light for use on an aircraft, comprising:

a prism having an input face, an output face, and a transfective face to receive, distribute, and direct light; and

at least one light source wherein a first portion of the light emitted
5 from said light source undergoes total internal reflection at said transfective face of said prism and a second portion of the light emitted from said light source is transmitted through said transfective face, the combination of said first and second portions of light producing a lighting pattern with a sharp angular cutoff corresponding to the critical angle for
10 said total internal reflection at said transfective face.

27. The position light of claim 26 wherein the light emitted from said light source forms a continuum of incident angles of light on said transfective face such that some light exceeds the critical angle of total internal reflection for said prism, some light is at the critical angle of said
15 prism, and some light does not exceed the critical angle of said prism.

28. A process for providing lighting for use on an aircraft, comprising:

providing a housing structure;
placing at said housing structure at least one light source;
20 applying electrical current to said light sources;
receiving, distributing, and directing light emitted from said light sources by means of a prism having an input face, an output face, and a transfective face, said light sources being located externally to said prism; and
25 passing the emitted light through a lens.

29. The process of claim 28 wherein a first portion of the light emitted from said light source undergoes total internal reflection at said transfective face of said prism and a second portion of the light emitted from said light source is transmitted through said transfective face, the
30 combination of said first and second portions of light producing a lighting

pattern with a sharp angular cutoff corresponding to the critical angle for said total internal reflection at said transfective face.

30. The process of claim 28, further comprising the steps of providing a second prism having an input face, an output face, and a transfective face and arranging said second prism at the transfective face of said prism to further shape and direct the light emitted by said light source.

31. The process of claim 28, further comprising the step of providing facets on the input face of said prism.

32. The process of claim 31, further comprising the step of including facets on all faces of said prism.

33. The process of claim 32, further comprising the step of shaping said facets to one of flat and curved shapes.

34. The process of claim 30, further comprising the step of providing facets on the input face of said second prism.

35. The process of claim 34, further comprising the step of including facets on all faces of said second prism.

36. The process of claim 28, further comprising the step of controlling said electrical current at one of from inside said housing structure and remotely from said housing structure.

37. A process for providing position lighting for use on an aircraft, comprising:

providing a housing structure;

placing at said housing structure a plurality of solid state light sources that are aligned to direct said light sources;

applying and controlling electrical current to said solid state light sources;

receiving, distributing, and directing light emitted from said solid state light sources by means of a prism having an input face, an output face, and a transfective face, said light sources being located externally to said prism; and

passing the emitted light through a lens.

38. A process for providing position lighting for use on an aircraft, comprising:

providing a housing structure having an interior surface;

5 placing at said housing structure a plurality of light sources that are aligned to direct said light sources, said light sources electrically connected in series-parallel;

aligning said light sources to direct said light sources;

carrying away heat generated by said light sources;

10 optically filtering light from said light sources;

diffusing light from said light sources;

receiving, distributing, and directing light emitted from said light sources by means of a first prism having a faceted input face, an output face, and a transfective face, said light sources being located externally
15 to said first prism;

shaping and directing the light emitted by said light sources by means of a second prism disposed at the transfective face of said first prism and having a faceted input face, an output face, and a transfective face;

20 applying and controlling electrical current to said light sources; and passing the emitted light through a lens.

39. A process for providing position lighting for use on an aircraft, comprising:

providing at least one light source;

25 applying electrical current to said light sources; and

receiving, distributing, and directing light emitted from said light source by means of a prism having an input face, an output face, and a transfective face, wherein a first portion of the light emitted from said light source undergoes total internal reflection at said transfective face of
30 said prism and a second portion of the light emitted from said light source is transmitted through said transfective face, the combination of said first

and second portions of light producing a lighting pattern with a sharp angular cutoff corresponding to the critical angle for said total internal reflection at said transfective face.

- 5 40. The process of claim 39 wherein the light emitted from said light source forms a continuum of incident angles of light on said transfective face such that some light exceeds the critical angle of total internal reflection for said prism, some light is at the critical angle of said prism, and some light does not exceed the critical angle of said prism.